

This species is distinguished from *E. spinosus* by the great number of spiny spinnerets on the dorsal surface of the female, and by the cylindrical tubes of the fringe. Its colour is also rather redder and lighter; but that is not a valuable character. I cannot find any clearly distinguishing marks in the males of the two species.

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DESCRIPTION OF PLATE II.

- Fig. 1. *Icerya purchasi*, male insect.  
 Fig. 2. " " part of antenna.  
 Fig. 3. " " extremity of abdomen, viewed from beneath.  
 Fig. 4. " " extremity of abdomen, side view.  
 Fig. 5. *Eriochiton hispidus*, adult female.  
 Fig. 6. " " Antenna.  
 Fig. 7. " " Foot.  
 Fig. 8. " " Marginal spines and fringe of test.
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ART. IV.—On the Freshwater Infusoria of the Wellington District.

BY W. M. MASKELL, F.R.M.S.

[Read before the Wellington Philosophical Society, 30th June, 1886.]

Plates III., IV., V.

THE following is the result of some investigations by the Microscopical Section of the Wellington Philosophical Society, Messrs. A. Brandon, jun., W. F. Barraud, C. P. Powles, T. W. Kirk, and the writer. These investigations have only been undertaken in the intervals of leisure afforded to men engaged in the ordinary work of life: the result, therefore, can be taken simply as complete as far as it goes; that is, merely a systematic list of the freshwater infusorian life here. The preparation of similar lists appears to be desirable in any country, and especially so in New Zealand, where the fauna and flora offer still so large a field for the inquiries of students of Nature.

The want of full opportunities and ample time, hinted at above, and the difficulty of arranging and working with apparatus constantly requiring attention, have prevented the members of the section from properly investigating the development of the animalcules herein presented as new to science. But, as these have not necessitated the establishment of any new genera, and as the processes of reproduction have been so fully studied and described in other countries, the defect in the present case is not of great importance. The phenomena of reproduction by fission have, of course, been frequently noticed, but time and opportunity have not been available for their continuous observation.

Two points require slight mention here. First, it is to be noted that in many instances, where animalcules have been referred in this paper to described species, there have been observed minute variations, not considered sufficiently important to induce the erection of a new species, yet often tending to make identification a matter of some difficulty. Instances of this may be mentioned in the genera *Stentor*, *Euglena*, and others, and especially, perhaps, in the Heterotrichous Order. It has been considered desirable to avoid as much as possible the multiplication of species. Secondly, it is noticeable that in some instances—e.g., *Aspidisca turrita*, *Licnophora setifera*—animalcules inhabit freshwater here which are only reported from sea-water in Europe or elsewhere.

Finally, it is to be observed that examination has only been made into strictly *freshwater* animalcules, excluding marine or "infusion" types. The present paper, being only the beginning of what may easily be a long task, has been purposely complicated as little as possible.

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#### CATALOGUE OF INFUSORIA.

##### Class I. FLAGELLATA.

##### Order. FLAGELLATA-PANTOSTOMATA.

##### Genus *Monas*.

*Monas fluida*, Duj. Wellington.

*Monas attenuata*, Duj. Wellington; Wainui.

Probably several others of this genus may also occur here.

##### Genus *Scytomonas*.

*Scytomonas pusilla*, Stein. Wellington.

##### Genus *Oikomonas*.

*Oikomonas mutabilis*, Kent. Wainui.

##### Genus *Cercomonas*.

*Cercomonas grandis*, sp. nov. Plate III., fig. 1, *a, b, c, d, e*.

Animalcules free-swimming, variable in shape, globular or elongate, with a single anterior terminal flagellum, and a somewhat shorter posterior terminal filament. Flagellum about half the length of the fully extended body. Contractile vesicle single, central.

Length when fully extended  $\frac{1}{400}$  inch = 62  $\mu$ . No oral aperture.

Wellington, *W. M. Maskell*.

Differs from described species in its very large size. The presence of a caudal filament and the absence of an oral aperture remove it from the genus *Astasia*.

Genus **Dendromonas**.

*Dendromonas virgaria*, Weisse. Wainui.

Genus **Anthophysa**.

*Anthophysa socialis*, De From. Wellington; Wainui.

*Anthophysa vegetans*, Müller. Wellington.

Genus **Goniomonas**.

*Goniomonas truncata*, Fres. Wellington.

Genus **Rhipidodendron**.

*Rhipidodendron huxleyi*, Kent. Wainui.

This is a peculiar and interesting form, and it is remarkable that the only other recorded specimens are from Dartmoor, in England. Curiously, also, the Wainui infusorian is accompanied, as in England, by the following species, *Spongomonas sacculus*.

Genus **Spongomonas**.

*Spongomonas discus*, Stein. Wainui.

*Spongomonas sacculus*, S. Kent. Wainui.

The occurrence of this curious monad with *Rhipidodendron*, here, as at Dartmoor in England, seems to suggest possible connection between the two. Neither of the two appears to have been recorded from any other locality. The character of the zoocytium, or common gelatinous granular mass enclosing the animalcules, seems scarcely to vary in the two genera; and the main difference would appear to lie in the fact that the animalcules of *Rhipidodendron* inhabit separately the tubes of a branching zoocytium, those of *Spongomonas* living together in the common mass. Time has not yet permitted a continuous investigation of the two forms, which might not impossibly be found, as hinted above, to be in some way connected.

Genus **Heteromita**.

*Heteromita lens*, Müller. Wellington.

Order. FLAGELLATA-DISCOSTOMATA, or CHOANO-FLAGELLATA.

(The "collared" monads.)

Genus **Monosiga**.

*Monosiga consociata*, Kent. Wainui. Plate III., fig. 2.

A figure of this species is given to illustrate the peculiar "collar" of the order.

Genus **Salpingæca**.

*Salpingæca amphoridium*, James-Clark. Wainui, Karori, Porirua.

## Order FLAGELLATA-EUSTOMATA.

Genus **Phialonema**.

*Phialonema cyclostomum*, Stein. Wellington.

Genus **Astasia**.

*Astasia tricophora*, Ehrenberg. Wellington, Wainui, Hutt Valley.

Genus **Euglena**.

*Euglena viridis*, Ehrenberg. Wellington, Wainui, Mungaroo, Hutt Valley.

*Euglena spirogyra*, Ehrenberg. Wellington, Wainui.

*Euglena acus*, Ehrenberg. Wellington.

Genus **Amblyophis**.

*Amblyophis viridis*, Ehrenberg. Wainui.

Genus **Phacus**.

*Phacus triqueter*, Ehrenberg. Wainui, Hutt Valley.

Genus **Trachelomonas**.

*Trachelomonas volvocina*, Ehrenberg. Wellington.

*Trachelomonas armata*, Ehrenberg. Wellington, Wainui, Hutt Valley.

*Trachelomonas crenulato-collis*, sp. nov. Plate III., fig. 3.

Lorica elliptical, covered with sharp conical spines, which at the edge form a continuous border of points; anterior aperture large, and produced in a short tubular fluted neck slightly widening to the end, and terminated by a crenulated edge. Animalcule green; lorica dark yellow with red edge. Flagellum single.

Wainui, Pukerua, Hutt Valley, *W. M. Maskell*.

An elegant little species, distinguished from *T. hispida* by the fluted tubular neck; from *T. eurystoma* by the rough lorica; and from *T. armata* by the absence of caudal spines.

Genus **Uvella**.

*Uvella virescens*, Ehrenberg. Wainui, Karori.

Genus **Dinobryon**.

*Dinobryon sertularia*, Ehrenberg. Wellington.

Genus **Sterromonas**.

*Sterromonas formicina*, Kent. Wellington, Wainui.

## Order. CILIO-FLAGELLATA.

Genus **Peridinium**.

*Peridinium tabulatum*, Ehrenberg. Wainui, Mungaroo, Karori.

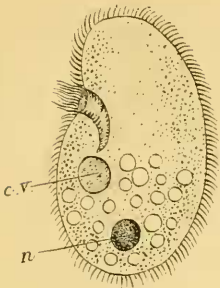


FIG. 6.

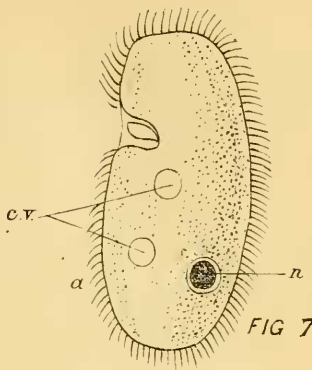
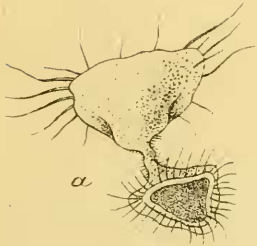


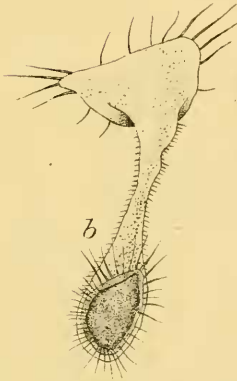
FIG 7



b



a



b



c

FIG. 8.



FIG 9

n

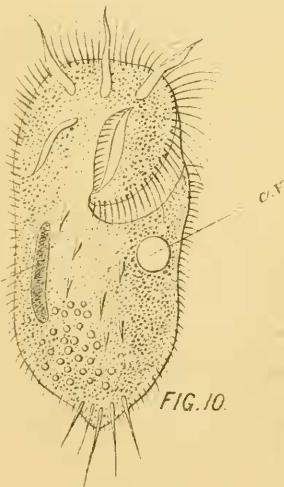


FIG. 10.

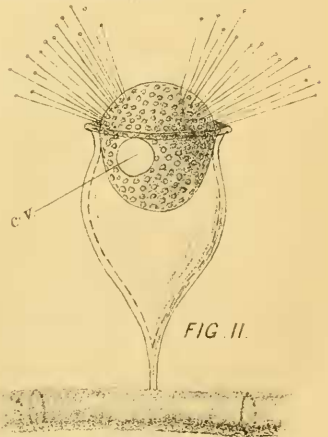


FIG. 11.

A variation of this infusorian, which might perhaps be a new species, was observed on one occasion, but not sufficiently examined. The cuirass was nearly twice as long as broad, almost ovate, and the posterior extremity exhibited a narrow, not very deep, slit.

Class II. CILIATA.

Order. HOLOTRICHA.

Genus **Paramœcium**.

*Paramœcium aurelia*, Müller. Wellington, Wainui, Hutt Valley.

*Paramœcium bursaria*, Ehrenberg. Wellington, Hutt Valley.

Genus **Prorodon**.

*Prorodon sulcatus*, sp. nov. Plate III., fig. 4; a, b.

Animalecules free-swimming; motion gliding, sometimes rotatory, not rapid. Body persistent in shape, cylindrical, ovate, slightly narrowed anteriorly, longitudinally furrowed by numerous, somewhat deep, striæ. Oral aperture terminal, narrow; pharynx narrow, cylindrical, somewhat deep, armed with numerous rod-like teeth which are very inconspicuous. Nucleus band-like, curved, sub-central. Contractile vesicle single, at the posterior extremity.

Length,  $\frac{1}{300}$  inch = 83  $\mu$ ; greatest width, about  $\frac{1}{400}$  inch = 62  $\mu$ .

Wellington, W. M. Maskell.

No mention appears to be made in descriptions of recorded species of the longitudinal furrows mentioned above. These show as conspicuous striæ in viewing the animalcule on the side; but in end view they become apparent as furrows. Other differences from *P. niveus*, *P. teres*, etc., are size, the narrowness of the pharynx, and the inconspicuous rods. After treatment with iodine, a kind of protrusion of the oral aperture is sometimes visible.

Genus **Trachelophyllum**.

*Trachelophyllum apiculatum*, Perty. Mungaroa.

Genus **Coleps**.

*Coleps hirtus*, Ehrenberg. Wellington, Wainui.

Genus **Tillina**.

*Tillina enormis*, sp. nov. Plate III., fig. 5.

Animalecule free-swimming; motion rapid, gliding, sometimes spiral. Persistent in shape, elongated, scarcely showing any reniform outline; length about three times the greatest width. Oral aperture ventral, slightly in advance of the median line; simple, fringed with cilia longer than those of the body;



followed by a distinct curved pharynx. Pharynx simply ciliated throughout. Nucleus oval, conspicuous, sub-central. Contractile vesicles two, near the extremities, often exhibiting stellate appearance, as in the figure. Body finely ciliated throughout, also sparsely striated longitudinally.

Length  $\frac{1}{30}$  inch = 833  $\mu$ .

Wellington, W. M. Maskell.

A large and distinct species, placed here in the genus *Tillina* on account of the characters of the oral aperture and pharynx. The longer cilia of the former remove it from *Paramacium*, and the absence of a vibratile membrane in the latter distinguishes it from *Plagiopyla* or *Colpidium*. *Anophrys* has no cilia in the pharynx. Kent assigns to the genus only one contractile vesicle, and in his species, as well as in those reported from America by Professor Stokes,\* the outlines are distinctly reniform; but these points do not seem sufficient to demand a new genus for the New Zealand animalcule. The shape and dimensions given above were very constant in a large number of specimens observed.

*Tillina inequalis*, sp. nov. Plate IV., fig. 6.

Animalcules free-swimming; motion rapid, gliding; persistent in shape, outline sub-reniform, the posterior portion larger than the anterior. Oral aperture ventral, a little in advance of the median line, situated in the shallow and not extensive depression of the body. Oral cilia longer than those of the body. Pharynx curved, not conspicuous, simply ciliated: no vibratile membrane. Nucleus inconspicuous, circular, posteriorly sub-central. Contractile vesicle single, sub-central, near the extremity of the pharynx. The food particles usually collected in a number of circular masses. Body finely ciliated throughout.

Length,  $\frac{1}{240}$  inch = 104  $\mu$ ; greatest width,  $\frac{1}{400}$  inch = 62  $\mu$ .

Wellington, W. M. Maskell.

This animalcule seems most nearly allied to *T. inflata*, Stokes, but differs in the inequality of the anterior and posterior portions, and in the shallowness of the depression between them. The form and dimensions given are quite constant. *Tillina campyla*, Stokes†, is much narrower and smaller generally.

#### Genus *Trachelocerca*.

*Trachelocerca filiformis*, sp. nov. Plate V., fig. 15; a, b, c.

Animalcule highly elastic and variable; body fusiform, somewhat pointed posteriorly, produced when extended into

\* "Ann. and Mag. of Nat. Hist.," vol. xv., 5th series, p. 441.

† "Ann. and Mag. of Nat. Hist.," Feb., 1886, p. 101.



an exceedingly long filiform neck, often reaching six or seven times the length of the body, and terminating in an obtuse sub-conical region rather wider than the neck, with a circle of longer cilia beneath it. Contractile vesicle single, posterior: endoplast elliptical, sub-lateral. The whole body and neck are marked with a network of striæ.

Length when fully extended reaching perhaps  $\frac{1}{70}$  inch = 357  $\mu$ , but the twistings and curlings of the thread-like neck are so rapid that measurement is very difficult.

Wellington, *W. F. Barraud*.

Closely allied to *T. olor*, Müller, but differing in the position of the single contractile vesicle and the character of the nucleus.

### Genus *Amphileptus*.

*Amphileptus anser*, Ehrenberg. Wellington.

### Genus *Colpidium*.

*Colpidium cucullus*, Schrank. Wellington.

### Genus *Plagiopyla*.

*Plagiopyla varians*, sp. nov. Plate IV., fig 7; *a, b*.

Animalcules free-swimming; motion rapid, gliding; persistent in shape, sub-reniform. Oral fossa ventral, a little in advance of the median line, sometimes shallow, broad, and at right angles to the axis of the body, sometimes tubular, conical and oblique; containing a narrow vibratile membrane which does not quite reach to the aperture. Nucleus posteriorly located, conspicuous, circular. Contractile vesicles 2, placed between the oral fossa and the posterior extremity.

Length,  $\frac{1}{200}$  inch = 125  $\mu$ .

Wellington, *W. M. Maskell*.

Resembling *P. nasuta*, Stein, but differs in the position of the nucleus, the two contractile vesicles, and the variation of the oral fossa. The animalcules observed presented this variable arrangement in a large number of specimens, and were at first thought to be distinct; but on further consideration they seemed to be really the same.

### Genus *Pleuronema*.

*Pleuronema coronata*, Kent. Wainui.

This animalcule appears to be identical with Kent's infusorian in everything except size. The European species is stated to have a length of only  $\frac{1}{270}$  inch = 86  $\mu$ , whilst the Wainui specimens reached  $\frac{1}{200}$  inch = 125  $\mu$ . It is not *P. chrysalis*, as it possesses long, fine, rigid setæ in addition to the cilia.

*Pleuronema cyclidium*, sp. nov. Plate V., fig. 16.

Animalcules sub-reniform, with very shallow groove, about twice as long as broad, having a number of long fine hair-like setæ over the whole body; setæ of equal length throughout. Extensile membrane of the oral region narrow, and rather deep when extended. Contractile vesicle single, at one extremity; nucleus sub-central, elliptical. A number of granular masses often visible in the parenchyma.

Length,  $\frac{1}{1330}$  inch = 19  $\mu$ .

Wellington, *A. Brandon*.

Differs from *P. chrysalis* and *P. coronata* in its extremely small size, which was constant in many hundreds of specimens observed, and which would make it approach nearer to *Cyclidium* or *Uronema*, except for the absence of the long caudal setæ characterizing those genera.

#### Genus **Cyclidium**.

*Cyclidium glaucoma*, Ehrenberg. Wellington.

#### Genus **Uronema**.

*Uronema marinum*, Dujard. Wainui.

#### Order HETEROTRICHA.

#### Genus **Metopus**.

*Metopus sigmoides*, Müller. Wellington.

#### Genus **Spirostomum**.

*Spirostomum ambiguum*, Ehrenberg. Wainui, Hutt Valley.

#### Genus **Stentor**.

*Stentor gracilis*, sp. nov. Plate V., Fig. 13; *a, b*.

Body of moderate size, highly extensile, white or light-brown: when fully extended very slender for almost all its length and suddenly widening to the peristome, giving something of the appearance of a broad-headed nail. Peristome at full extension nearly half as wide as the length of the body. Sides of the extended stem nearly parallel, average width below the peristome region about one-fifteenth of the total length. Parenchyma containing often several dark-coloured granular masses. Contractile vesicle spherical, situated below the peristome. Endoplast band-like. Peristome border narrow, slightly emarginate in its whole extent, with a very deep cleft on one side extending for some distance down the stem; the cleft bears the usual peristomal cilia. Body when free-swimming elongate, racket-shaped, exhibiting the cleft of the peristome almost closed, as a narrow longitudinal slit.

Length of the extended animalcule rather more than  $\frac{1}{30}$  inch = 833  $\mu$ .

Wellington, Hutt Valley, *W. F. Barraud*.

The slenderness of the extended stem, the sudden widening of the peristome, the deep lateral cleft and the white colour, separate this from all described species. The dimensions and form given were constant in several specimens observed.

*Stentor striatus*, sp. nov. Plate V., fig. 14; *a*, *b*.

Body very large, dark-green with almost a blue tinge, highly elastic. When fully extended it has something of the shape of an old-fashioned deep champagne-glass, being narrow and very long, widening gradually from the point of attachment to the peristome, which is not recurved and widened, being scarcely wider than the portion of the body beneath it. The peristome edge is irregular, rising at one spot to a sharp point, and in another depressed in a not very deep groove, beneath which is a sub-cylindrical transverse region of very dark-green colour, reaching nearly to the median line: this appears, when the animalcule is free-swimming, as a conspicuous helical coil. Parenchyma containing several large granular masses, often coloured brown. Contractile vesicle spherical, below the peristome. Endoplast long, moniliform. The whole body is marked with broad, conspicuous striæ, which are most perceptible in the contracted state, and which give a crenulated appearance to the edge when the animalcule rolls over and is seen from one end.

Length of the fully extended body  $\frac{1}{11}$  inch = 2260  $\mu$ .

Wellington, Ohariu, *W. F. Barraud*.

The very large size, dark-green colour, conspicuous striæ, and scarcely expanded peristome of this species are sufficiently characteristic. Dimensions and form constant in many specimens.

#### Order. PERITRICHIA.

##### Genus *Halteria*.

*Halteria grandinella*, Müller. Wellington, Wainui, Hutt Valley, Karori.

##### Genus *Strombidium*.

*Strombidium claparedii*, Kent. Wellington.

##### Genus *Gyrocoris*.

*Gyrocoris oayura*, Stein. Wellington, Wainui.

##### Genus *Urocentrum*.

*Urocentrum turbo*, Müller. Wainui, Hutt Valley.

##### Genus *Licnophora*.

*Licnophora setifera*, sp. nov. Plate IV., fig. 8; *a*, *b*, *c*.

Animalcules free-swimming, sometimes attached; motion very rapid, jerking or twisting. Body very irregularly shaped; the foot-like region more or less oval beneath, tumid, and bearing instead of cilia a few, about 20, somewhat strong setæ, of which

the greater number are collected in two groups at the extremities of the foot. Neck-like region long, slender, compressed, elastic, bearing numbers of short fine cilia. Anterior portion or head variable in form from triangular to oval; peristome-cilia long and conspicuous, surrounding the large oral aperture. Nucleus oval, inconspicuous, situated in the foot-region. Contractile vesicle not observed.

Length variable, from  $\frac{1}{900}$  inch = 28  $\mu$  when contracted, to  $\frac{1}{350}$  inch = 71  $\mu$  when extended.

Wellington, *W. M. Maskell*.

This is the first species of the genus as yet reported in fresh water. It is somewhat larger than either of the two European marine animalcules, and differs also in the presence of strong setæ, instead of cilia, on the foot-region.

#### Genus *Vorticella*.

*Vorticella annularis*, Müller. Karori.

*Vorticella longifilum*, Kent. Wellington.

*Vorticella campanula*, Ehrenberg. Wellington.

*Vorticella cratera*, Kent. Wainui.

*Vorticella citrina*, Ehrenberg. Wellington.

*Vorticella zealandica*, Kirk. Wellington.

*Vorticella elongata*, De From. Wellington.

*Vorticella patellina*, Müller. Wellington, Wainui.

*Vorticella nebulifera*, Ehrenberg. Wellington.

*Vorticella aperta*, De From. Wellington.

All the above species are reported by Mr. T. W. Kirk, in "Trans. N.Z. Inst.," vol. xviii., 1885, p. 215.

#### Genus *Zoothamnium*.

*Zoothamnium affine*, Stein; var. *granulatum*, var. nov.

Resembles almost entirely the European infusorian, but has a longer pedicle and a rough granular surface. It was also not observed on aquatic animals, but on plants.

Wellington, *A. Brandon*.

#### Genus *Epistylis*.

*Epistylis leucoa*, Ehrenberg. Wellington.

Ehrenberg's species, according to Kent, p. 705, has not been observed for many years. The present infusorian agrees with it entirely, with the exception that the surface is granular and the colonies larger, containing 20 to 35 individuals.

#### Genus *Opercularia*.

*Opercularia parallela*, sp. nov. Plate IV., fig. 9.

Body slender, about three times as long as broad, sides parallel for about two-thirds the length from the margin, then

tapering rapidly to the pedicle. Peristome border not, or only slightly, thickened. Ciliary disc moderately elevated, cilia in a single row. Endoplast band-like, curved, nearly transverse. Cuticular surface granular. Contractile vesicle single, near anterior margin. Pedicle annulated, branched.

Length of body  $\frac{1}{350}$  inch = 71  $\mu$ .

Wellington, T. W. Kirk.

Closely allied to *O. cylindrata*, Wrzes., but more cylindrical and rough, without striæ.

Genus **Vaginicola**.

*Vaginicola crystallina*, Ehrenberg. Karori.

Genus **Platycola**.

*Platycola longicollis*, Kent. Wellington.

Order. HYPOTRICHA.

Genus **Litonotus**.

*Litonotus fasciola*, Ehrenberg. Wellington, Wainui.

A specimen from Karori appeared to be also of this species, but exhibited a number of transverse corrugations.

Genus **Chilodon**.

*Chilodon cucullulus*, Müller. Wellington, Hutt Valley.

Genus **Loxodes**.

*Loxodes rostrum*, Ehrenberg. Wellington. Doubtful.

Genus **Stichotricha**.

*Stichotricha remex*, Hudson. Wainui.

Genus **Psilotricha**.

*Psilotricha acuminata*, Stein. Wainui.

Genus **Uroleptus**.

*Uroleptus musculus*, Müller. Wellington, Hutt Valley.

Genus **Gastrostyla**.

*Gastrostyla Steinii*, Engelmann. Wainui.

Genus **Histrio**.

*Histrio acuminatus*, sp. nov. Plate IV., fig. 10.

Animalcules elongate-elliptical, with nearly parallel sides, somewhat pointed at the posterior extremity; border evenly ciliated. Peristome-field large, with long cilia and conspicuous reflected border, ciliated on left side. Three large unciniate frontal styles and a few smaller ventral setæ. Five simple anal styles, which project for about two-thirds of their length beyond the posterior extremity. Contractile vesicle single, situated just below the peristome-field. Endoplast elongated, conspicuous.

Length about  $\frac{1}{180}$  inch = 139  $\mu$ .

Wellington, Wainui, A. Brandon.

This animalcule resembles *H. similis*, Quennerstedt, but differs in the acuminate posterior extremity, and in the freshwater habitat.

Genus **Stylonichia**.

*Stylonichia mytilus*, Ehrenberg. Wellington, Wainui, Hutt Valley.

Genus **Aspidisca**.

*Aspidisca turrita*, Claparède. Wellington.

The European species only inhabits salt-water. There appear to be no differences between it and our New Zealand form, and the only point to be noted is the freshwater habitat.

An animalcule observed, having a very short and blunt dorsal spine, even in some instances without spine, is taken to be only a variety of this species.

Genus **Glaucoma**.

*Glaucoma scintillans*, Ehrenberg. Hutt Valley.

Genus **Euplotes**.

*Euplotes patella*, Ehrenberg. Wellington, Wainui, Hutt Valley, Mungaroa, Karori.

Class III. TENTACULIFERA.

Order. TENTACULIFERA-SUCTORIA.

Genus **Sphærophrya**.

*Sphærophrya magna*, Maupas. Wellington.

This animalcule seems to agree entirely with Maupas' species (which is reported only from Algeria), with the exception of its size, which reaches  $\frac{1}{450}$  inch = 55  $\mu$  as against  $\frac{1}{600}$  inch = 41  $\mu$  in the African infusorian. All other characters being similar, it is not thought desirable to consider it as even a variety.

Genus **Acineta**.

*Acineta elegans*, sp. nov. Plate IV., fig. 11.

Lorica vase-shaped, with distinctly reversed margin, which is chiefly apparent at each side. Lorica widening somewhat below the edge, and rapidly compressed beneath, though not at once closing, but produced downwards to a point whence there is a short pedicle. Length from the point to the orifice about twice the width of the expanded margin. Animalcule nearly spherical, only occupying the upper half of the cup; tentacles forming two antero-lateral groups with about fourteen in each group; tentacles distinctly capitate, rather longer than the diameter of the animalcule. Contractile vesicle spherical, eccentric. Endoplast indistinct. Parenchyma granular.



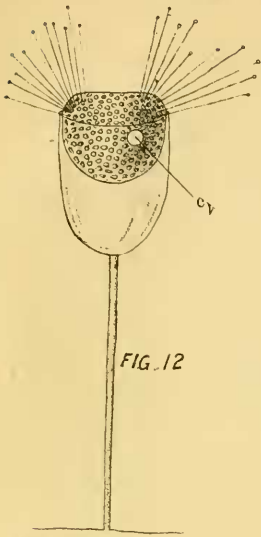


FIG. 12

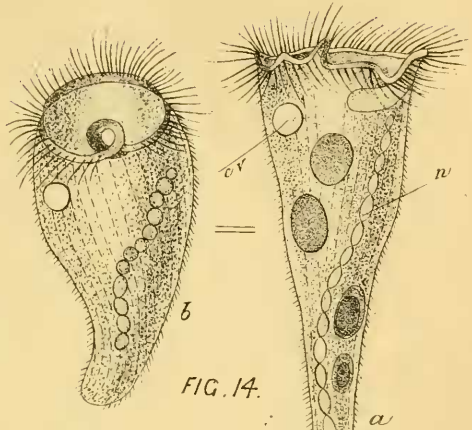


FIG. 14.

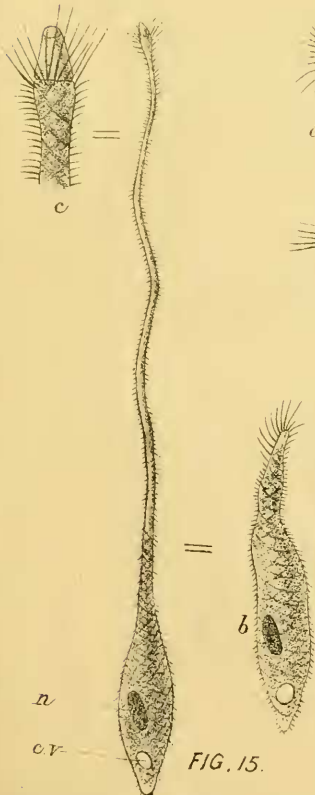


FIG. 15.

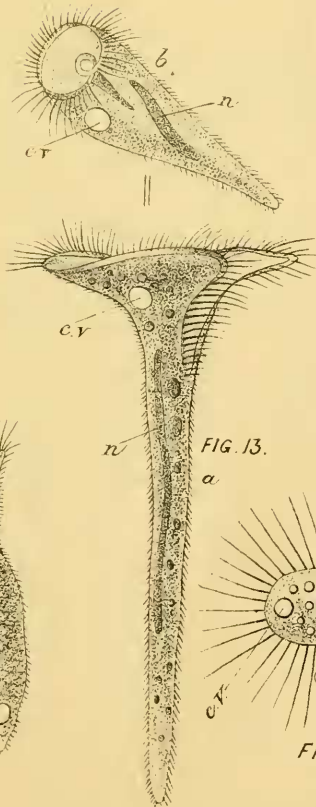


FIG. 13.

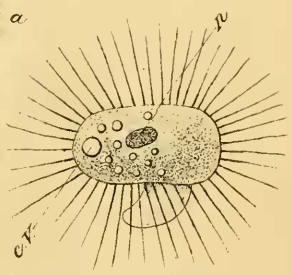


FIG 16



Length of lorica, exclusive of pedicle,  $\frac{1}{300}$  inch = 83  $\mu$ ; width at margin  $\frac{1}{600}$  inch = 41  $\mu$ ; length of pedicle,  $\frac{1}{2000}$  inch = 12  $\mu$  usually, but reaching sometimes  $\frac{1}{1500}$  inch = 16  $\mu$ .

Wellington, C. P. Powles.

The animalcule of this species very nearly resembles that of *A. grandis*, Kent; but the form of the lorica separates it from all described species. *A. poculum*, Hartwig, a saltwater infusorian somewhat resembling it, has apparently a long pedicle.

*Acineta simplex*, sp. nov. Plate V., fig. 12.

Lorica wine-glass shaped, anterior edge not narrowed, lip not reversed, posterior extremity rounded, sides nearly parallel; pedicle moderately stout, about twice as long as the lorica. Animalcule occupying the anterior half of the lorica, sub-spherical. Tentacles capitate, arranged in two groups of about ten in each. Contractile vesicle situated on one side near the anterior margin.

Length of lorica,  $\frac{1}{500}$  inch = 50  $\mu$ ; width of edge,  $\frac{1}{600}$  inch = 41  $\mu$ .

Wellington, T. W. Kirk.

Amongst the division of *Acineta* having the tentacles in two groups, the nearest to this seems to be *A. grandis*, Kent; but the sizes differ greatly, the European species having a length of  $\frac{1}{100}$  to  $\frac{1}{75}$  inch = 250 to 333  $\mu$ ; also its lorica tapers much more rapidly to the base, which is obtusely pointed.

EXPLANATION OF PLATES.

PLATE III.

- Fig. 1. *Cercomonas grandis*.
- Fig. 2. *Monosiga consociata* (after S. Kent).
- Fig. 3. *Trachelomonas crenulato-collis*.
- Fig. 4. *Prorodon sulcatus*.
- Fig. 5. *Tillina enormis*.

PLATE IV.

- Fig. 6. *Tillina inequalis*.
- Fig. 7. *Plagiopyla varians*.
- Fig. 8. *Lienophora setifera*.
- Fig. 9. *Opercularia parallela*.
- Fig. 10. *Histrio acuminatus*.
- Fig. 11. *Acineta elegans*.

PLATE V.

- Fig. 12. *Acineta simplex*.
- Fig. 13. *Stentor gracilis*.
- Fig. 14. *Stentor striatus*.
- Fig. 15. *Trachelocerca filiformis*.
- Fig. 16. *Pleuronema cyclidium*.

